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Robert G. W.

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REMARKS
ON
SEA-WATER;
WITH
OBSERVATIONS
ON ITS
APPLICATION AND EFFECTS,
INTERNALLY AND EXTERNALLY,
AS CONDUCTIVE TO HEALTH.

By CHARLES TAYLOR, M.D.
Fellow of the London Medical Society
Secretary to the Society for the Encouragement of Arts, Manufactures, and
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Philosophical, and Agricultural Societies of Manchester;
of the Dublin Society; and of the Electoral
Leipsig Economical Society.

also of the Institution at Cork
and Philosophical Society of Middleburgh

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1805.

Troxelov beg^t
with sincere respects
from the Author

ENTERED AT STATIONER'S-HALL.

TO

Mr. JAMES DUTTON,

SURGEON,

HASTINGS, SUSSEX,

AS A TESTIMONY OF ESTEEM AND REGARD,

FROM

THE AUTHOR.

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INTRODUCTORY LETTER.



DEAR SIR,

YOU presented to me a publication called the "*Hastings Guide*," containing much useful information to strangers, relative to the town, port, and environs of Hastings. The perusal gave me pleasure, but it appeared to me, that some instructions to Valetudinarians were wanting, to show them how to attain more perfectly the advantages which the sea-coast affords, and to enable them to procure that state of health which, on their return home, would assist them in prosecuting their studies, labours, or amusements with alacrity. During the many pleasant hours I passed with you at Hastings, we remarked, that the general treatises which had been published on sea-water and sea-bathing, did

did not enable the visitors of bathing-places to judge accurately respecting the effects of baths of different temperatures on their complaints, as the writers on the subject had been of various opinions in distinguishing the gradations of heat. You induced me at that time to promise you to give my sentiments upon it, and to attempt a more accurate arrangement. I have no doubt that the observations might be conveyed to the public by an abler hand; but, after having made such promise, I think it a duty due to you and my numerous friends at Hastings, to whom a tribute of respect is owing for the many civilities I experienced during the bathing-seasons I have passed there, to endeavour to point out to them and their visitors the best modes of the application of sea-water internally and externally, and other advantages within their power of attainment. Hastings possesses the conveniences of inclosed baths, hot and cold, and of public sea-bathing in an eminent degree; besides which, the climate of the town, as is proved by the verdure

ture which surrounds it, is peculiarly favourable to persons of delicate constitutions.

I have occasionally visited most of the sea-bathing places in England and Wales, and have with some attention considered the general medicinal effects of sea-water on the human body. To my own experience I have here added what has been yet known, either in this country or on the Continent, that seems to me of consequence to the subject. I have attempted to deliver the whole free from technical terms, to give such general instructions as may be serviceable to every person who visits the sea-coast, and in a style that may be comprehended by every reader; being more ambitious to convey useful information, than to make a pedantic parade of learning.

Not being dependent on the practice of medicine for pecuniary reward, I feel a pleasure in freely contributing my services; and I have seen so many instances of your disinterested professional exertions for the benefit of individuals, that

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I am

I am certain you will approve my good intentions.

Respecting the treatment of cases which require surgical aid, combined with the effects of sea-water, I have repeatedly conversed with you ; and you know my sentiments thereon, particularly my objections to the use of very adhesive, greasy, or spirituous applications on the sores or ulcers of persons advanced in life, and my opinion of the danger of healing them hastily : your professional practice will enable you to judge with more precision than myself how far I am right or wrong in those opinions, as such cases do not immediately belong to the medical department.

The constitution of every patient may be benefited by occasional deviations from rules generally recommended either in the practice of physic or surgery ; and a person who, like you, is constantly resident at a sea-bathing place, will know how to act with most propriety on such occasions. I am well persuaded that no attention on your part will be wanting, to promote

mote the health of such valetudinarians
as may require your assistance.

I remain truly,

Dear Sir,

Your Friend and Servant,

CHARLES TAYLOR.

John-Street, Adelphi,
August 13, 1805.

PRELIMINARY OBSERVATIONS

ON BATHING AND SEA-WATER.

ON the arrival of a male visitor at a sea-bathing place, it is no uncommon thing to observe him, the first morning afterwards, plunge himself into the sea, and exhaust himself with violent exercise in swimming, without having given himself a moment's consideration of the probable consequences. His stay in the place may be short, the subsequent disorders which arise from such hasty measures are imputed to other causes, and the evil is increased by the error being frequently repeated. A number of sea-bathing places must be seen, according to a previous arrangement of a party, for a few weeks excursion; a dip must be taken at each place, and the person returns home expecting to have received an important benefit from such a journey, when, in truth, an immediate fever may be the consequence, or a foundation established for permanent disease. To guard against

such imprudent measures, is the object of of the present essay: the ill effects, though they be not immediately perceived, are certain; and I remember an acquaintance of mine, who apparently in full health and vigour, by such an immersion, though only in the tepid bath of Buxton, lost his life in a few days.

It is a duty incumbent upon every person who is desirous to benefit from an excursion to the sea-side, to await at least two or three days after his arrival, before he ventures to bathe: and after considering the rules I shall endeavour to state for different constitutions and disorders, I trust he will find the plan recommended, attended with permanent benefit.

It is well known, that both hot and cold baths were in great estimation by the ancients, as conducive to health and luxury; but their use in England, since the Romans, appears to have been greatly neglected till within little more than the beginning of the last century; and periodical sea-bathing has taken place considerably within that time.

On

On viewing the alterations in point of accommodation which have taken place, within the last fifty years, on the coasts of Great-Britain, it may be fairly concluded that the advantages of sea-bathing and sea-water in diseases have been fully established from a conviction of their efficacy, and that it now only remains to deduce from observation in what cases they are more particularly serviceable, and by what means their good effects may be most easily obtained.

The effects of bathing in pure river-water or in sea-water have, in many respects, a great similarity; but as sea-water has in almost every case a decided superiority, my remarks will be generally directed to the use of sea-water.

Sea-water, when taken up at a distance from the shore, appears limpid, tastes salt, nauseous, and bitter: it purifies by keeping: it contains, upon the coasts of Great-Britain, from one twenty-eighth to one thirty-eighth of salt. The water which I have examined by a very accurate hydrometer, two successive seasons, at Hastings, is to distilled water as 1028 to

1000, and holds in solution a thirty-sixth part of saline matter. The purgative qualities of sea-water depend, in a great measure, upon the muriated magnesia it contains, which is a neutral substance formed naturally from the earth of magnesia, and the acid of sea-salt, and which gives sea-water its bitter taste: the other saline contents are chiefly common culinary salt, with a very small proportion of selenite.

The sea-water of our coasts, tried by *Fahrenheit's* thermometer, is seldom, in our coldest winter, of a lower temperature than 40 degrees, or higher in the greatest heats of our summer than 66 degrees; its usual temperature in autumn is from 60 to 62 degrees.

Our animal temperature may be known by inserting the bulb of the thermometer under the tongue, and is usually from 96 to 98 degrees in all climates. It appears to me, that the absorption of heat into the body takes place and proceeds till the stimulus of the vital powers counteracts its effects, and perspiration then
beginning,

beginning, prevents a farther accumulation, while the body remains in health.

The surface of the body of a person of a moderate size is fifteen square feet; of course, in bathing, a large surface is exposed to the pressure and action of the water.

The pulse of a healthy person of middle age and stature beats from 60 to 80 times in a minute; in old people, sometimes only 30 or 40. Violent exertions will occasion 100 pulsations, and fever from 112 to 140.

In no case whatever, where the heat of a bath should be ascertained, is the feel or touch to be depended upon for judgment of it; even the two hands of the same person will experience different sensations of heat: the trial by the thermometer is the test that can only be trusted to, and such an instrument is a necessary companion to every company at a bathing-place.

Evaporation from the body produces cold; therefore an exposure to the air for some time after bathing, is inimical to the vivifying glow of heat required.

INTERNAL USE OF SEA-WATER.

THE sea-water intended for internal use should be taken up at some distance from land: it would be supplied in the greatest purity, if procured by the fishermen's boats, and preserved in a clean stone bottle for use. That which is taken up on the shore contains many impurities, owing to the putrified substance it washes over, and the nature of the soil or stratum of earth with which it is in contact in ebbing or flowing, and which often render its effects contrary to those procured from pure sea-water.

The mode of taking sea-water usually recommended, is to begin early in the morning with small doses, such as the quantity of one fourth, or even as far as half a pint at once, repeating the dose in an hour or two, and increasing or diminishing the quantity as it is found to agree or disagree; increasing the doses in succeeding days gradually as the stomach would bear, as far as a pint and a half or a quart, taking one third an hour before
breakfast,

breakfast, one third in the interval betwixt breakfast and dinner, and the other in the evening, and decreasing the quantity in like manner before quitting the situation.

When sea-water produces a nausea and sensation of weight in the stomach, it is better to employ it as an alterative, than to proceed in taking it in considerable quantities: in such cases, the quantity of a wine-glass taken over night, another early in the morning, and a third an hour after breakfast, and this mode continued for some time, will keep the body regularly open without occasioning unpleasant sensations; and when the body is accustomed to its use, the doses may be increased without inconvenience.

Dr. Buchan recommends, when sea-water is intended to act as a brisk purge, to drink about a pint in the morning at two separate times before breakfast; or rather, to drink half a pint at bed-time, and the same quantity early in the morning, mixed with as much boiling water as will warm it. Thus taken, it will not, as he justly observes, disorder the bowels in

8 INTERNAL USE OF SEA-WATER.

the night, and will act the next day without irritating and deranging the system.

He further recommends, with great propriety, a single purge of sea-water to be taken as above, by persons apparently in good health, preparatory to the use of sea bathing.

A material advantage which the sea-water possesses over other aperients is, that it does not afterwards constringe, but is rather productive of an increased action of the intestinal canal, which continues for some days.

Where children cannot be prevailed upon to take sea-water unmixed, the addition of one third or one half of warm milk may be admitted in using it.

Dr. Elliot remarks that sea-water acts as a brisk stimulus to the stomach and intestines, thereby increasing the appetite and promoting digestion.

By its property of keeping the body open for a considerable time without hurting the constitution, it will frequently remove disorders which have resisted the force of other remedies,

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It is of excellent use in *scrophulous complaints*, and generally removes *glandular swellings*. In these cases it has sometimes a better effect, when joined with the bark: a tea-spoonful of Huxham's tincture of bark may be added to each half-pint of sea-water.

Sea-water clears the intestines from *worms and viscid humours*, and purges off gross humours where an inactive life has been led, and where the appetite has been too freely indulged.

Dr. Saunders observes, that the use of sea-water internally may be persevered in for a length of time without injury; that on the contrary it increases the health and appetite; that it is useful in *scrophulous affections* which have produced hard indolent tumours in the glands, especially of the neck, or even in deep-seated inflammation followed by a caries of the bone, profuse discharge and tedious exfoliation, or in troublesome and painful *diseases of the eye*, so often characteristic of this disorder; but it should not be used, if there is a fever or hectic tendency.

Where

Where a nausea occurs after drinking salt water, a little candied citron or lemon peel may be eaten, to correct its unpleasant flavour. My friend Dr. Werner, of Friburg, has so high an opinion of the efficacy of candied citron, that he recommends its general use in all unpleasant affections of the stomach, not attended with inflammation.

Where the sea-water does not pass off easily, it may be assisted by any of the purgative medicines to which the patient is accustomed.

Sea-water is an excellent purgative in *Paralytic Complaints*, also in *Disorders of the Urinary Passages*, and in the early stages of consumption in children.—From ten to twenty drops of nitrous æther, or dulcified spirits of nitre, taken with sea-water, or after it, will assist its action in the urinary vessels.

ON BATHING IN SEA-WATER.

THE terms which have been used by physicians respecting the temperatures at which different denominations of baths take place, have been very irregular and undefined; and I have endeavoured to correct this error, by arranging the sea-baths in four divisions, viz. Cold, Temperate, Warm, and Hot, leaving intermediate degrees betwixt each, which may be minuted, where they occur in use, by the number of degrees they may happen to be above or below the divisions noted. Sea-water is not congealed at 32 degrees, the same temperature which freezes river-water: the saline part is indeed seldom or ever congealed in the coldest climate, the ice floating therein yielding water nearly free from salt.

The four divisions I have adopted are:

| | | |
|---------------------|-------------|--|
| Cold Sea-bath | | from 32 to 50 of Fahrenheit's Thermometer. |
| Temperate sea-bath, | 55 to 75 | Ditto |
| Warm sea-bath | 80 to 95 | Ditto |
| Hot sea-bath | 98 upwards, | as far as the body can bear. |

Vapour-

Vapour-baths from sea-water scarcely differ in effect from those of common water, and therefore do not require to be noticed in this treatise. Each of the baths I have mentioned have a different effect upon the human body; and it is principally by modifying the organs which serve for the circulation that these differences arise.

Sea-water, by its saline quality, excites the action of the solids more lively than those of common water of the same temperature, and increases the circulation and secretions more abundantly, particularly those of urine.

It removes more efficaciously obstructions of the glands and viscera, particularly of the glands connected with the skin, and cutaneous affections.

Sea-bathing, as well as a temperate bath of pure water, is a tonic moderately astringent and refreshing; but it is more aperitive, more dissolvent, more diuretic, and more antispasmodic.

Before bathing in the open sea, it will be proper to bathe two or three times in a warm sea-water bath of about 90 degrees;
it

it will not only remove any impurities on the surface of the body, but assist greatly in opening the absorbent vessels, and remove obstructions in the exhaling organs.

On the days of bathing, it is improper to take the water internally.

Sea-bathing is useful in those cases where the energy of the vital principle should be increased, and where the strength and action of the muscles should be augmented; it improves the appetite, and promotes digestion.

Dr. Currie observes, that danger does not arise from bathing when the human body is hot, but from going in when it is cooling or growing feeble, after being heated; and that, even after using the hot bath, and the heat is increased two or three degrees by it, it is not only safe but refreshing to plunge into a cold bath.

Dr. Buchan properly notices, that the custom of wearing flannel or woollen may in most instances be laid aside during a course of sea bathing, with impunity, though not without caution.

Persons are less liable to take cold by being wet with salt than fresh water,
owing

owing to the stimulating effects of its salt, and to the exhalent pores of the skin being thereby prevented from contracting.

The skin properly so called, consists of three parts; first, the *cuticle* or outer skin, which is a thin transparent membrane; secondly, the *rete mucosum* or mucous membranc; and thirdly, the *cutis* or inner skin, which is a thick membrane situated betwixt the former and the fatty membrane covering the external surface of the whole body.

The cutaneous arterics are continually exhaling or giving out a very subtle fluid, called perspiration when invisible, or sweat when forming globules on the surface of the outer skin.

The absorbents are slender pellucid tubes, which inhale or absorb what is applied to the skin, and convey the fluids internally. There should constantly exist an equilibrium of action betwixt the exhalent and absorbent vessels, otherwise disease, general or local, ensues.

By bathing, the extraneous matters which adhere frequently to the surface
of

of the skin, and are one cause of disease are removed, and the exhaling and absorbing powers assisted in performing their functions and removing other disorders.

EFFECTS OF THE COLD SEA-BATH.

THE action of the cold-bath, when continued some time on a person of a feeble habit, causes a general sobbing, and paleness; the lips become livid; the person breathes with difficulty, and his head is giddy; his pulse contracts, becomes small and irregular; and a great coldness gradually supervenes, if he continues in the bath.

If the person is strong and remains only a few minutes in the bath, a very contrary effect takes place: on leaving it, his pulse is animated, a sudden heat seizes him, and a glow succeeds it: his visage and skin become coloured, his breathing is full and strong, and a general warmth and perspiration succeed.

We have shown the danger of a long continuance in the cold bath, and that it would even go near to extinguish the vital principle, but that a short continuance produces a very different effect: whilst the organs are vigorous and capable of exerting their efforts, they surmount every unpleasant sensation, a firmness

ness of the pulse takes place, and the circulation is kept within proper bounds.

Floyer and Baynard, upwards of a century past, have been lavish in their praise of cold baths, and noted the advantages of their use in fevers and other disorders; but have not, with just discrimination, pointed out the rules on which those advantages depend.

Dr. Currie has clearly shown that no danger arises from cold-bathing, even if the person is very warm or beginning to sweat, provided the body has not been debilitated by disease or exercise previously to his entering the bath; in which latter case its use must be avoided.

The cold bath will be useful in the cases where the solids have become relaxed and require bracing, where humours too much rarefied should be condensed, and in suppressing sweats in weak habits. It will give elasticity to the nerves, correct superabundant heat, and allay irritation; it is refreshing, tonic, and antispasmodic.

Cold water acts upon the body immersed therein in three different ways;

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first,

first, by its fluidity, which occasions it to embrace and press equally on all the parts on which it comes in contact; secondly, by its coldness, which constricts the solids and condenses the fluids: and thirdly, by its gravity, which being 1000 times more than that of common air, compresses the surface with an additional weight, and repels all the fluids from the circumference to the centre.

Its action appears most powerful on the diaphragm, or that membrane which, situated above the navel, divides the trunk of the body into two cavities, and is exquisitely sensible to the effect of cold water, and occasions the unpleasant throbbings perceived on going slowly into the water.

The external vessels of the body are contracted by immersion in cold water, so as to receive little blood, and the internal ones are proportionably distended and enlarged. When the external impulse is removed, if the internal vessels which perform the vital functions be vigorous, the blood is propelled with new energy by the increased force given from the elasticity of
of

of the fibres, and thus the circulation and perspiration are resumed and carried on with extraordinary vigour. The body, which was cold and chilly, becomes warm and lively, and perspires freely, all which circumstances arise from the great momentum given to the blood by invigorating the solids.

To persons of a sedentary life with quick pulse, restless nights, and impaired appetite, cold-bathing affords great relief.

It is servicable to persons who have *involuntary emissions of urine*, and in a *relaxed state of the fibres*, incapable of procreation.

The occasional use of the cold bath inures the body to a wider range of temperature, and diminishes the danger of sudden transition from heat to cold.

Cold sea-bathing has been generally recommended after the *bite of a mad dog*; but the excision of the part bitten should not be omitted, if possible. Salivation by mercury has sometimes effected a cure in this dreadful disorder.

EFFECTS OF THE TEMPERATE SEA-BATH, OR
HEAT OF THE SEA IN SUMMER.

THE temperate bath occasions impressions similar, but in less degree than a cold bath; as, a little shuddering, a small loss of colour, the breathing rather obstructed; the pulse softer, the head confused; but the constriction ceases in two or three minutes; the breathing becomes more free; an inclination to make water, and to an evacuation, takes place, and sometimes a slight head-ache occurs: but after leaving the bath for half an hour, the person feels an agreeable freshness; he finds himself light and easy; all his functions become free; a gentle perspiration arises, and he has an appetite for food.

The circulation seems to be constrained in the temperate bath; but this constraint is only momentary, and not considerable: the functions of the body are rather moderated than troubled; they are soon executed freely, and a pleasant calm continues long after the person has left the bath.

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The water of this bath presses first with force upon the body, and by its weight occasions a reflux of the blood to the interior, or rather checks its advance in the parts submitted to its action. Its coolness affects the nerves, and occasions some contraction in them; it diminishes the heat of the skin and of the solids, by abstracting, by means of the joint effects of its coolness and specific gravity, some of the heat which they contained: but the momentary check thus occasioned is soon counteracted by the increased circulation, proceeding from the fulness which has been excited; a moderate relaxation succeeds the tension; the vital powers act with facility; the circulation is regular; all the organs of secretion and excretion enjoy equal liberty; the humoral mass moistened by the water, which enters the circulation by the absorbent pores, is diluted and edulcorated; and the good effects of the temperate bath remain a long time after bathing.

The perspiration is rather less abundant than the absorption during bathing, because the impression of cold upon an

organ so sensible as the skin, occasions some restrictions to the exhaling vessels, which the impulse of the circulation cannot then surmount; but after leaving the bath, the pressure of the water upon the skin having ceased, if no extraordinary feebleness of the system arising from debility or great fatigue intervenes, the perspiration is re-established, and the vital powers become firm and vigorous.

The temperate baths penetrate the humoral mass; soften and moderate its fluidity, assist in depurating it, and occasion only such evacuations as are necessary.

The temperate bath will procure some of the advantages of the cold bath, and many of those of the warm bath. By its coolness it will lightly condense the solids and fluids, giving tension to some, and diminishing the rarefaction of others, and under this view will be tonic and refreshing. On the same principle, by diminishing perspiration it will be diuretic and gently purgative.

Whatever disorders arise from a *debilitated state of the solids*, if taken in time, before

before the bowels are affected, may be relieved by bathing in temperate baths; but after the bowels are affected, it is dangerous to use them.

In Fevers, it appears, from a very judicious course of experiments by Dr. Currie; that sea-water, by aspersion, affusion, or immersion, may be safely used at the time when there is no sense of chilliness present; when the heat of the surface is steadily above what is natural, and when there is no general or profuse sweat.

He observes, that though the patients were often startled at the first proposal of dashing water over them, yet after the first trial it was generally highly grateful and refreshing to their sensations; the abatement of fever was commonly followed by a more or less disposition to sweat, and this again by refreshing sleep.

He adds, that the cold affusion of water, from 40 to 50 degrees, in the three first days of fever, generally stops the disease; that the same happy effects sometimes follow its use, on the 4th or even the 5th day, but seldom later, though even in the subsequent stages it is frequently service-

able in relieving the most distressing symptoms, particularly restlessness and delirium.

That where the heat is great, the skin dry, and the vascular action strong, he uses water perfectly cold; but when these symptoms diminish, he uses it temperate; and as they subside still further, he employs it warm.

That, in the cold stages of fever, warm liquors must be drunk; but in the hot stage, cold water may be drunk with freedom.

The Gout is supposed to arise from an obstruction of those vessels which produce a gelatinous fluid for lubricating the joints, and keeping their motions free and easy.

The Rheumatism differs from the Gout, by affecting the muscles, membranes, or the capsules of the muscles and tendons, the glands, and even the membrane that envelops or covers the bones.

Sea-bathing in both disorders, in the interval between the fits, is of service; but caution is necessary, to prevent the gouty matter fixing on the bowels, the stomach, or the brain. The following prescription

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I have found so serviceable in preventing such an accident, and in correcting other internal spasms, that I can safely recommend it:

R Confectio cardiaca, one drachm; peppermint-water, two and a half ounces; of spirituous cinnamon-water and aromatic tincture, each three drachms; of tincture of opium, forty-eight drops—mix the whole well together, and take two meat-spoonfuls thereof every two hours till the pains abate, shaking the bottle well before using it.

Sea air and moderate exercise are of service both in the gout and rheumatism.

In female relaxed habits, in the fluor albus, and in inordinate menstrual discharges, temperate baths are serviceable; and in females of soft and delicate habits, it may be used previous to, and two or three months after conception; but should, in pregnancy, be preceded by warm baths.

EFFECTS OF THE WARM SEA-BATH.

ON entering it, a little shuddering takes place, but it is of short duration; the respiration is scarcely affected; the exterior vessels of the body enlarge a little; the pulse becomes full, beating softly, but firm; its frequency rather increases; the visage reddens a little, and a gentle moisture rises thereon: the person has great inclination to make water, and becomes rather drowsy; on leaving the bath he urines abundantly, perspires freely, but does not sweat unless he exercises violently, or goes into a warm room; he feels himself fresh and comfortable, and has an appetite and good digestion.

An oily scum appears on the water of the bath he has used, and the water would soon putrify.

On leaving the warm bath, if the redness and moisture of the visage of the person continues, with a fulness and frequency of the pulse, or if sometimes a light head-ache intervenes, these are proofs of the acceleration of the course of the blood;

blood ; yet the subsequent agreeable sensations it produces, the sleep it occasions, and the softness of the pulse, leave no room to doubt that it is a serviceable acceleration of the circulation which is effected by the bath.

In the warm bath no vessel is strained, all the secretions are performed with great facility ; all the excretory organs are opened and discharge themselves ; perspiration takes place, the exhaling vessels not being too much dilated ; the external absorption is considerable.

A long continuance in the warm bath attenuates the humoral mass, and produces an evacuation which may be advantageous, but which may easily become excessive, and exhaust or weaken those who use them ; whilst a moderate use of it relaxes fibres which are too tense, gives a liberty to the circulation and a moderate strength.

The utility of warm baths will extend to all the circumstances in which it is necessary to produce relaxations ; to soften the solids, to dilute the fluids ; in promoting a quiet and regular circulation ; in
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establishing a proper equilibrium between the solids and the fluids; in facilitating the openings of the small vessels; in removing obstructions in the glands; in assisting perspiration, and both internal and external absorption: it procures a light rarefaction and moderate heat, without exciting violent emotions.

It may therefore be generally regarded as producing calmness and refreshment; it is emollient, diluting, gently opening, diuretic, and producing sleep.

The warm bath above 90 degrees has a general tendency to bring on a state of repose; to alleviate any local irritation, and thereby to induce sleep: it is safer in use than the cold bath, and more peculiarly applicable to very weak and irritable constitutions.

Every person attentive to health, should occasionally use a warm bath as a salutary purifier of the cutaneous surface: a strict attention to purity of person cannot be too much recommended, as the matter thrown out by perspiration, if permitted to accumulate on the surface of the skin, closes the pores and occasions disorders
which

which might be prevented by washing in warm water.

Almond-meal is particularly useful in removing perspiration from the surface, and rendering the skin more soft and pliant, where there appears a roughness or harshness.

Warm-bathing is a preparative for the cold or temperate baths; for when the humours are become thereby more fluid, and the cutaneous glands and emunctories cleansed, the contracting power of the cold bath will be very serviceable.

It has been already shown that solid and fluid bodies are condensed by cold, and expanded by heat: hence the animal fibres, upon immersion in cold baths, are constricted and contracted, in warm baths are softened and relaxed. In warm and hot baths the circulation is brought from the centre to the circumference of the body, and the pores freed from foulness by the water; the pulse is raised, the heat increased, and the pores opened.

The greatest efficacy of warm-bathing is found in violent constrictions or constipation of the pores of the skin, or the excretory

excretory ducts and passages, attended with contractions, distensions, spasms, and convulsions occasioning extreme pain. ?

Frictions with a flesh-brush, coarse flannel, or even coarse linen, are of singular service whilst using the warm or hot baths, and should never be omitted on such occasions.

In general weaknesses, the warm bath should be used several times, commencing with a heat of 90 degrees, or something more, and reducing the heat at each bathing; afterwards having recourse to the temperate bath twice a week, and using moderate exercise.

In the chlorosis, and most affections incident to females about 13 years of age, the greatest possible care and attention is required on the part of their friends. In such cases, about eight grains of ipecacuanha in powder, taken in the evening as an emetic, and the stomach cleared by repeated draughts of warm water, may be used once or twice a week, or, what is preferable, sea-sickness brought on repeatedly by excursions on the water, which will greatly contribute to restore the

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the secretion of healthy bile, and to invigorate the system.

The bowels should, in the interim, be kept regularly open by the following pills, viz. Take of Rufus's pill and cathartic extract, each half a drachm; of prepared calomel, ten grains; mix the above well with syrup, so as to make twenty pills, of which take one in the evening occasionally.

The use of this pill will be extremely serviceable to females, in every stage of life where evacuations are required, and will answer every purpose of those advertised under the names of Female Pills, Scots Pills, &c. the dose being increased to two, or diminished to half a pill as occasion may require.

When these remedies have been exhibited to young females as above mentioned, the use of the warm bath may be commenced, at a heat of about 94 degrees, continuing therein about five minutes: it may be used on alternate days for two or three weeks, gradually diminishing the heat of the bath, and prolonging the time of continuance therein to half an hour or more, and using, during the whole time,

time, gentle frictions with a coarse flannel, upon the lower parts of the body, and along the spine of the back. Fresh air, walking, riding, moderate dancing, cheerful company, and amusements, may be added to this regimen; and when there are evident signs of the health and strength being improved by such means, then the use of the open sea may be attempted with great hopes of permanent advantage, and may be continued if that vivifying glow of heat which we have characterized as the signal of the good effects of sea-bathing follows its trial.

There will be some cases where the introduction of tonical medicines internally may be serviceable additions to the methods I have recommended; but in general the regimen prescribed will be sufficient.

I have been more particular in minuting the necessary attention to young females, as their peculiar delicacy frequently prevents them from ever speaking to their parents upon the subject; and attention at this period may ensure them long future health and happiness.

Nervous

Nervous Diseases require a mode of treatment similar to those last mentioned, but a longer use both of the warm and temperate baths; and lastly of the cold bath, if no chilliness succeeds it.

In bad habits of body, where there is a depravity of the constitution of the whole or of a great part of the body, without any feverish or nervous disease as the primary one, warm sea-bathing, of about 94 degrees, is serviceable in the commencement of the cure; the person to remain for ten minutes on the first trial of the bath, and to be well rubbed with a flesh-brush and flannel; the bath repeated four or five times in a fortnight, and afterwards temperate and cold baths used. The pills I have before mentioned, may frequently be given, to keep the body regular. Under the above descriptions of disease may be comprehended, *the Swellings of Limbs*, attended in women with a cessation or an irregularity of the monthly periods; also, general cases of *Scrofula*, or *King's Evil*; *Scorbutic Complaints*; *Distension of the Belly*; *Scarcity of Urine*; *Rickets*; *Syphilis*; *Leprosy*, or *Roughness of the Skin*:

all of which will be benefited by the above treatment. In most of these cases it will be proper to take the sea-water both internally and externally.

In incipient Dropsies, Dr. Reid is of opinion, that warm sea-bathing is serviceable.

In *Wastings of the Body*, or *Atrophy*, the warm bath is eminently serviceable; also in various chronic affections of the organs subservient to the *secretions of urine*, in diminishing the pain produced by the stoppage of *gall-stones* in the duct of the gall-bladder; also in that species of colic produced by the *poison of lead*, and in all *fixed pains* of the lower parts of the belly.

EFFECTS OF THE HOT SEA-BATH.

THE person who tries the hot bath finds himself, on entering it, affected with a lively heat; his skin reddens; his face becomes enflamed; a copious sweat comes on; the vessels of his body swell; his pulse, which is frequent and high, increases more and more: if he continues long in the bath, it weakens, and beats irregularly, but with great quickness; he becomes agitated, has palpitations, sensations of stupidity, a burning thirst torments him, and he cannot remain longer in the bath without danger.

After leaving the bath, he is covered with a copious sweat, the pulse gradually recovers its natural tone, it grows softer, and as the heat acquired during the bath declines, the patient finds himself weak and languid: the water in which he has bathed is generally sensibly greasy, sometimes smells offensively, and putrifies soon.

Every thing announces that the hot bath rapidly increases the circulation; that the action of the solids, highly excited, attenuates the humoral mass nearly to a decomposition of its principles, producing a

solution capable of altering the vital functions, and, by a waste of their force, producing a copious sweat.

The influence which bathing hath on the circulation manifests itself more quick in the hot than in the cold bath: it is accelerated in the hot bath from the moment the bather is immersed.

The effects produced from hot baths are, because the capacity of the vessels are not more proportioned to the mass of humours which should percolate them; it is because the solids, being very elastic, very irritable, much constrained, the action of the vessels is greatly exerted; their reaction becomes very strong; the blood is pushed on with powers so lively, that the circulation is much quickened, and the lateral pressure of the blood is very strong on the sides of the vessels which contain it: therefore, there is scarce any vessel, however small, whose tone is not acted upon: the frictions are multiplied; and as the heat increases, the humours are broken and decomposed; a prodigious sweat takes place; and the external absorption is annulled

nulled by the extraordinary dilatation of the exhaling vessels.

The hot bath will render motion to the humours, which are become sluggish by being too thick; it will open impediments in the small vessels; it will, above all things, dissolve slimy obstructions, and extend a heat over the whole body.

It may generally be considered as heating, tonic, attenuant, opening, and sudorific.

In Palsies, the hot bath, of 100 degrees, is recommended; and acrid frictions upon the parts affected should be used during the immersion.

The Lumbago, or violent pains of the Loins, is relieved by the hot bath, and by afterwards embrocating the parts with volatile liniment.

In the irregular Gout, a sea-bath of 100 degrees may be used: the cold or temperate bath is not advisable at this period, lest the gouty matter should fix in the stomach, the bowels, or the brain. The body should be kept open by warm bitter purgatives, taken occasionally.

GENERAL REMARKS ON SEA-BATHING.

PREVIOUS to the entering either cold or temperate baths, the mind and bodily powers should be at ease, to encounter the sudden shock arising from immersion in the water.

To procure the good effects of bathing in its utmost extent, it should be continued for five or six weeks at least. Where time will permit, it would be best to divide the season into two periods; for instance, the latter end of May, and the whole month of June, for the first; and the latter end of September, and the month of October, for the second period: but when this cannot be admitted, the whole month of September, and beginning of October, should be preferred.

The *bathing-dresses* wore by females should be of a very open texture, so as to admit the water in every direction; otherwise the purpose of bathing is not answered.

Bathing before breakfast is usually recommended for the cold and temperate
baths:

baths: to bathe immediately after eating or drinking freely is dangerous; but persons subject to wind or flatulencies, will find it better to bathe an hour or two after breakfast than at an earlier period. If obliged to bathe earlier, a biscuit, a glass of wine, a few peppermint-drops, or a few cardamom seeds, should be previously taken.

Bathing alternate days is much better than for several days together.

In the Cold Bath, a continuance of two or three minutes is sufficient. It is best, both in this and the temperate bath, to plunge in quickly, and have a total immersion at once; but if this cannot well be done, it will be proper, with the hand, to throw some cold water upon the head previous to entering far into the bath, to prevent the sudden impulse of the blood upon the brain, which may occur from the chilliness and pressure of the water on the body. After leaving the bath, it will be serviceable to walk about smartly, to facilitate the action of the vessels, and promote perspiration.

No person should continue *in the temperate bath*, if he feels sensations of shivering or sickness; but otherwise he may stay therein from five minutes to a quarter of an hour, and will find himself much refreshed by it: a longer continuance is not advantageous nor prudent.

One or two total or perfect immersions are sufficient, and more conducive to health than a greater number.

On quitting the water, a flannel or coarse linen cloth is necessary to wipe with: it is proper to rub first the water from the spine of the back, then to put on a *light flannel gown*, to prevent the body being chilled; afterwards let the feet be wiped perfectly dry, and proceed to dress as you like: no inconvenience will arise, if the other parts of the body and limbs are not dry.

Bathing in the morning is preferable to any other time of the day. *Bathing in the evening* is followed by a copious perspiration or sweat, which counteracts the invigorating powers of the bath.

In stepping in and out of the *bathing-machines*, keep the mind perfectly composed: do not hurry, for fear of accidents or hurting yourself against the steps.

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In the *warm bath* a person may continue till a perspiration takes place upon the forehead, or quit it sooner if he finds any unpleasant sensations: usually he may remain therein from 5 to 30 minutes without being fatigued or his spirits exhausted; it will be advisable not to continue more than from 5 to 10 minutes at the first trial, till its effects are ascertained with some precision.

If it is thought necessary to increase the perspiration after leaving the warm bath, it may be done by putting the patient in a warm bed, but this is seldom necessary.

The use of the *flesh-brush* along with the warm bath is very serviceable, particularly in the early trials of the bath.

Dr. Reid, who has well considered the subject, hath observed that a bath of 93 degrees does not give a sensation of actual warmth when in the usual temperature, because it is five degrees colder than the usual heat of the blood; that, when taken at a lower degree of heat, it sometimes occasions difficulty of breathing and faintness. He has imagined that remaining
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in the bath 10 or 15 minutes may be a sufficient time to act upon the absorbing system and invigorate it, but that remaining half an hour longer may act as a sedative, and occasion languor and faintness.

If faint by continuing in the warm bath, he recommends a little broth to be taken, or a little wine and water, milk-warm, with a new laid egg beaten therein.

Dr. Currie observes, that water heated to 98 degrees, the temperature of the human body, generally accelerates the pulse.

The *hot bath* should, in general, be used with caution; and it is proper, after using it, to pass into another bath of a less degree, to allay the heat it has occasioned, and to diminish the extension it has given to the solids.

Though the hot bath is frequently used in the day, yet for persons of delicate habits it is preferable to take it in the evening, afterwards to return home in a chair, and to keep both body and mind easy and composed.

PARTIAL APPLICATIONS OF SEA-BATHS.

WATER produces its effects more particularly on the parts exposed direct to its action condensing or rarefying the skin, and the humours which are placed more immediately under the cellular membrane, than the interior solids, and liquids circulating under them.

It is frequently of service to concentrate the effects of the water on some particular part exposed to its action; either by immersion of such parts only, for instance, of the hands or feet; or by pumping upon or directing a stream of water to the part affected. When water falls from a height, its pressure is increased, and by its weight it has some advantage over simple immersions, particularly on the part to which it is directed; but its benefit is not, in such case, absolutely confined to that part; but its influence will frequently extend to the whole system.

A fall of water from a pump or otherwise assists in dissolving and putting in motion the viscid and stagnant humours
exposed

exposed to its power ; and this, not only by its humidity, which renders them more moveable, but also by the shock or pressure of the water, which occasions a friction and internal motion which divides and attenuates the humours, and carries them into the general circulation.

It is owing to the nervous sympathy, that *bathing the legs or arms* in warm water relaxes the nervous system ; calms spasmodic affections and head-aches ; promotes sleep, relieves pains of the breast and stomach, and irritations of the bowels.

In *affections of the muscles*, for instance, of the fingers, where they are disposed to fly open, and are with difficulty kept contracted or closed, the effect proceeds from the weakness of the muscles under the wrist, which want force to counteract the muscles on the outer part of the wrist, which are too powerful in action : in such case, the application of the fall of cold water should be on the interior of the wrist, in order to give strength and firmness to the relaxed muscles there, so as to counteract those which act in a contrary direction. It is probable the effect
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might be further assisted by softening the rigidity of those last mentioned, by the affusion of water, heated to a considerable degree. But as most muscular contractions depend upon other diseases of the body, additional means are required to assist such partial applications and improve the general habit.

In all *contractions of the muscles*, it seems proper that very warm water should be often applied to the part contracted, in order to dilate it; and cold water to the opposite muscle, in order to recover its tone and force.

Females in the decline of life are subject to *ulcers upon the legs*, which prevent frequently more serious disorders, but render total immersions in the water improper: in such cases, partial ablutions of the body with wet flannel would be serviceable to their general state of health.

Where *strumous tumours* are seated on the neck, the application of linen cloths, moistened with sea-water, and renewed from time to time, is serviceable; besides which, bathing, and sea-water taken internally, greatly assist the cure.

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The application of heated sea-water to a *swelled or lame joint*, by means of a forcing pump, is very beneficial.

In Wens, bathing the part often with warm sea-water for many days together, will cure them without pain.

Washing the loins of persons of both sexes with cold water or sea-water, is greatly conducive to health and strength, and should be frequently practised.

Where, from infirmities or other circumstances, bathing in the sea cannot be enjoyed, *shower baths* of cold, temperate, or warm sea-water, may be used to advantage.

Dr. Russel speaks highly of the following application to *swelled glands*; with which he recommends the tumour to be rubbed two or three times a day, and the part afterwards washed with sea-water.

Take vesicles of sea-wreck (*quercus marina cum vesiculis*) full of their liquor, which are usually found in abundance on the sea-shore and sea-water, two pints; let them stand together in an earthen vessel ten or twelve days, till they
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make a liquor resembling thin honey ; which strain for use. Some of the modern physicians have no great confidence in the above preparation, though all seem to agree in the benefit arising from the friction of the part affected : there is certainly however, along with the lubricating quality of the above mixture, a stimulating power useful in discussing the tumour.

ON SEA-BATHS, SUITABLE TO CHILDREN
AND PERSONS OF DIFFERENT AGES
AND CONSTITUTIONS.

WARM BATHS are necessary *for Infants*, to facilitate the expansion of the vessels; but temperate baths should be occasionally added, to give a spring to their fibres.

I cannot help here exploding the custom of attempting to induce infants to walk before the bones of the legs are sufficiently strong to sustain the weight of the body: to this improper mode is owing the many crooked legs observed in great towns, besides other bodily defects. Let children be permitted to roll about upon the dry grass, or a carpet, as much as they please; it admits them to use their limbs freely, and assists the efforts of nature in forming them in just proportions.

The alternate and frequent use of warm and temperate baths is serviceable to *children*, to assist their growth and give them strength.

Sea-bathing is serviceable in the *Rickets*; but there is a caution in respect to children:

dren being bathed, a cold immersion should be used either when so very young that the child may not be apprehensive what is doing, or not till five or six years of age; as sometimes, by frightening them when young, it has given rise to convulsions.

The stratagem of giving children a few comfits after immersion, pretending that they are found in the sea, will frequently encourage them to bathe, and remove their fears.

Care should be taken that the bowels of children are sound, previous to bathing: if any way swelled, they should be reduced by repeated small doses of calomel taken at night, and worked off by a little infusion of manna, or rather of senna, in the morning. *Convulsions in children* are frequently removed by a similar treatment, succeeded by bathing.

Sometimes gentle emetics may be given them in the morning; as half a grain, or one grain of emetic tartar in any liquid, to remove glandular obstructions and cleanse the first passages. Warm bathing will be afterwards serviceable.

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When the *hooping-cough* has become a chronic disease, it is often removed by a change of air to the sea-side; and when the cough has ceased, bathing will be proper.

Every youth should be permitted to indulge himself with the use of bathing in the sea or in rivers: no exercise more effectually admits a free use of the limbs than swimming. It is necessary that every youth should learn it early, as it not only contributes to bodily health, but may probably be the means of saving his own life, as well as that of his fellow-creatures, in cases of emergency.

Swimming should not, however, be pursued so far as to produce fatigue.

Young men should frequently bathe in the sea, and particularly in autumn, to render their limbs more pliant, to render their breathing and perspiration easy, and to prevent the obliteration of the arterial vessels, the usual first symptoms of old-age; and, lastly, to guard them against being affected by cold.

The different constitutions of men, and the effects of bathing in changing their nature,

nature, render the use of baths very important.

A single plunge will produce warmth, vigour, and refreshment; but repeated plunges enfeeble, and occasion head-ache, chilliness, and general lassitude, during the remainder of the day.

Old men will find the warm baths a mean of retarding their fibres from becoming rigid, preventing the obliteration of the vessels by which circulation is performed, and will contribute to give them long life.

For them, its use for half an hour twice a week, will be greatly serviceable, as experienced and acknowledged by Dr. Franklin.

Men of a sanguine constitution require baths of a considerable warmth to diminish and soften the tension of the solids; to render the secretions mild and easy, particularly perspiration; preserving the liquids in that state of fluidity which will prevent the danger of suffocation.

In *persons of a bilious temperament*, the solids are usually in a state of irritation; the humours acrid, and the heat of the body great. The warm bath is necessary,

from its relaxing, lubricating, edulcorating, and refreshing powers: the temperate bath is also generally useful to them.

Persons of a melancholy constitution will receive considerable advantage from the warm bath attenuating and softening the solids; but when this temperament proceeds from a bad habit of body, or a nervous atony, or wasting, a temperate bath will answer better; and sometimes even the cold bath, by its tonic, astringent, and subsequent warming qualities.

In *phlegmatic habits*, the use of the cold bath is generally serviceable, as is also the hot bath; because their humours are viscous, phlegm is redundant, and the solids relaxed. To correct this temperament, it is necessary to give firmness to the solids; to excite the action of the vessels; to attenuate the humours; and evacuate those which are redundant.

Women who perspire little, and who use but little exercise, may supply the want of action by the use of warm or temperate baths at least once a week: the particular state of their nerves renders this custom very advantageous.

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In tender habits, particularly amongst females, the back part of the head is affected, after bathing, with a head-ache, proceeding from hysteric complaints: it will usually be removed by a few drops of compound tincture of lavender, or tincture of steel, taken daily in a cup of warm water.

An advantage will be obtained to *persons of delicate habits*, by washing the surface of the body frequently with a cloth dipped in salt water, or rubbing the skin till it glows, with a coarse towel moistened with sea-water.

Cold water suddenly dashed on the face and neck, is the most effectual means of putting an end to *an hysteric paroxysm*; also, an excellent remedy for that kind of insensibility produced by inhaling *the vapours of charcoal*.

Nervous Disorders are generally supposed more prevalent of late years than formerly; and the use of tea has been, by many persons, assigned as the cause of their increase. The substitution of this article in place of the animal food which formed the breakfast of our ancestors, may

have rendered the body less vigorous; but we are not to look upon tea as the primary cause of the disease. When we observe ladies of delicate habits heated and enfeebled by immoderate dancing, thinly clad, attending in anti-chambers for conveyance home, chilled by the cold evening's blast, or exposed by late evening's visits alternately to cold passages and hot rooms; when we see gentlemen pass from warm apartments, where the pleasures of the bottle have affected their heads; or after their minds have been agitated by games of chance, we find them return at late hours, in all weathers, to their respective habitations; or, when we observe studious men absorbed in deep reading or speculations, for many hours together, till the extremities of the body grow cold, and the circulation languid, for want of due exercise; when we reflect on the pains we take to prevent the admission of the smallest quantity of cool air into our rooms, and how little we guard in our dress against the changes in the atmosphere: these matters, I am of opinion, will be found sufficient to give violent irritations to
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the delicate structure of the nerves, and occasion derangements to the whole system, independent of the sufferings of the mind, which too often contribute a large portion to the increase of nervous disorders. To trace the origin of the disease, and particular mode of treatment most necessary to each patient, in a disorder which assumes such variety of forms, requires the utmost skill of a physician; but it has been generally found that cheerful company and sea-bathing are highly beneficial. A commencement with the warm sea-bath, and afterwards a course of temperate sea-bathing, on alternate days, for some weeks, will be proper. One or two tea-spoonfuls of compound tincture of Peruvian bark, with the addition of from six to ten drops of elixir of vitriol, may be taken every morning fasting, in a glass of water, and the same quantity an hour before dinner. If the mixture of bark and elixir of vitriol should occasion any unpleasant sensations in the bowels, the addition of from four to eight drops of Thebaic tincture to each dose, will correct such effects and render the medicine cool-

ing, calming, and invigorating to the constitution. I have known radical cures in violent nervous disorders by such means frequently effected, particularly where the mind has at the same time been kept composed and amused by agreeable company, and moderate exercise.

The dose of bark before breakfast on the bathing-days may be omitted; but that before dinner may be daily continued, if the body has a regular evacuation.

CAUTIONS IN THE USE OF SEA-BATHS.

ALTHOUGH the utility of baths are so extensive, they must not be regarded as specifics, there being some cases in which, so far from being serviceable, they may do mischief.

The hot bath is dangerous in all delicate sensibility of the organs; in great irritability, weakness, inflammatory sore throat, or schirrous affection of the bowels; when the humours are dry and acrid; when the internal secretions languish; and when swoonings are to be feared.

The cold bath should be avoided where there is danger of fainting. It would be dangerous to sick persons, whose organs are too weak to surmount the check it opposes to the circulation on entrance therein: it seldom agrees with women and children, and never with those whose glands or schirrous viscera render the quickness of the circulation to be dreaded.

The warm bath would be dangerous to those persons who have internal suppurations or abscesses, or whose glands or
viscera

viscera are in a state to become cancerous. It is also improper to those whose solids are extremely relaxed, who have violent sweats, and whose excessive evacuations have occasioned feebleness.

If *the temperate baths* are sometimes of disadvantage, it is when the weakness is so great, that the action of the vessels is absolutely incapable to counterbalance the pressure of the water, or when the animal heat is so reduced, that it would be destroyed by a short continuance in cold water.

In *complaints of the breast or asthma*, bathing is prejudicial; but sea-air, sailing on the sea, and sea-sickness, are conducive to a cure.

Bathing is dangerous to those whose heads are weak; inclined to consumptions, inflamed bowels; who are subject to shortness of breath, or faintings. Those persons whose first passages are full of putrid, offensive, or bilious matters, should avoid all kinds of baths; because the vessels of such persons cannot stand the shock of the surcharge of blood, which the pressure of the water throws
on

on the internal parts; because the fullness of the viscera, their irritability and extreme sensibility render hurtful the rarefaction of the humoral mass, and the acceleration of its motion; and lastly, because the bad state of the primary passages render an increase of the internal absorption much to be dreaded.

The use of the cold bath should be absolutely forbidden to those who have a spitting of blood, and to persons whose lungs are weak.

The effect of the cold winds in diminishing the heat of the human body, when exposed naked to their influence, immediately on leaving the water, is great, and should be guarded against with care.

If a person is extraordinarily cold and chill after bathing, the application of a bladder of hot water to the pit of the stomach, is the best mean to restore animal warmth.

OF MEDICINE, DIET, AND OTHER NECESSARY ATTENTIONS.

BATHING may in many cases be used advantageously with internal *medicines*; particularly with bark, preparations of mercury or steel.

Persons of *full or gross habits* should be bled, or well purged, previous to the use of bathing; otherwise their fullness of humours may expose them to dangers.

It is improper to bathe upon a full stomach; but seldom or ever any inconvenience arises from eating soon after bathing, particularly if the person feels himself warm and comfortable; if chilly, the meal should be postponed till a proper warmth is produced by exercise.

Much has been said by different writers upon the *subject of diet*; and physicians, in prescribing rules for the purpose, generally consider the effect which different articles of diet have upon their own constitutions. Invalids, in general, can judge from experience what will best agree with them, and some indulgence may be allowed

lowed them in such cases, provided high-seasoned meats and rich sauces are not comprised in their requests. A good and simple rule is necessary, viz. that the appetite should never be glutted, but rather left unsatisfied.

A moderate use of good wine or malt liquor may be admitted; but excess of every kind should be avoided, where a pursuit of health is the object.

Attention to the calls of nature is a most important object in the animal economy; and where the times for repletion and evacuation can be fixed, should be regular. It is a fact, that the mind and body may, by habit, be brought to act so far in unison together, as greatly to assist each other.

If we breakfast, dine, or sup at stated hours for some length of time, we naturally look forward to those hours for refreshment, and suffer a temporary disadvantage, if our expectations are not then gratified; the body has accustomed itself to expect repletion at such time, and completed the functions necessary for its reception; and by such regularity, the
secretions

secretions are performed with greater ease.

A similar circumstance occurs respecting our evacuations, which requires an equal attention. A medical friend of mine, in very extensive practice, has frequently remarked the necessity of a regular evacuation taking place every morning after breakfast; and said there is no other certain rule in the medical department of equal consequence; he added, that habit renders it almost always possible; and that the attempt to enforce this rule should on no account be neglected.

There is certainly much truth in the observation; and I wish, on the part of the female sex in particular, that it may meet with their attention. The numerous human preparations I have frequently examined at Mr. Heaviside's and Mr. Brookes's, besides many other similar collections, have confirmed me in opinion, that most of the disorders incident to females take their rise from neglect in such points.

In attending the very interesting anatomical lectures of Mr. Brookes, in Blenheim-

heim-street, I have been much struck with the accuracy in which he has traced many female diseases to this source, and proved by actual demonstration from his numerous preparations, that certain death, either lingering or immediate, is frequently the consequence of false modesty.

I do not wish my fair countrywomen to adopt all the customs of their French neighbours; but at the same time I would not advise them to suffer in health, from too refined a delicacy. It is the duty of every man who values the fair-sex, whenever he is in company with them, to allow them sufficient opportunities for retirement, without their modesty or delicacy being offended; and I strongly recommend to the fair-sex, not to injure their healths by careless inattention, or neglect on such occasions.

In persons of either sex, where the body is costive, either sea-water internally, or medicine should be given, or both occasionally combined.

Sea-water will improve and purify itself for internal use by keeping for some hours; but would putrify, if kept many days.

ON AIR, EXERCISE, AND AMUSEMENTS UPON THE SEA-COASTS.

THE air we breathe is composed of two or more kinds of gas, of which only one is proper for respiration, and which has been usually termed pure air, from its property of enabling animals to live much longer in an equal bulk thereof than of common atmospheric air.

It was termed by the old chemists, *dephlogisticated air*; by the moderns, *oxygeneous gas*.

The air of the atmosphere absorbs, from the matters with which it comes in contact, some of the principles which they contain, and is itself decomposed in its passage over them: from this circumstance arises the deleterious qualities of the air which passes over morasses or heaps of putrid matter, and the improvement of air from its contact with water or fresh vegetables.

The examination of a pond of water previous to, and soon after a brisk current of air has passed over it for a few hours, will afford a curious instance of this important fact; for the floating particles
which

which had rendered the water muddy, previous to the brisk action of the air, attract from the air, in its passage over them, some of its constituent parts, are thereby rendered more heavy, and fall to the bottom, leaving the water above them bright and limpid.

The sea, in a similar manner, attracts from the atmospheric air those qualities which render the air inimical to the human body; and thus the air upon our sea-coasts is rendered more healthy than what is generally found in the interior parts of England.

The violent storms, so dreadful in appearance, are the wonderful means which the Almighty hath adopted, to purify the air we breathe, and to prevent those pestilential diseases which would otherwise arise from an infected atmosphere. From experiments made by my late friend Dr. Ingenhousz, it appears that atmospheric air is very pure at sea: not so pure on the coast; but still worse within land.

Change of air is found serviceable in many diseases; and the air upon the sea-coast will contribute greatly to improve

the health of many persons whose *nerves* might be too much affected by the shock attending an immersion in the sea.

Seldom any danger or inconvenience arises from being *wet with sea-water*; the irritation it occasions upon the skin, whilst evaporating, preserves the continuance of a certain, though insensible perspiration.

Great caution is necessary for the valctudinarian to take *against being exposed to the rains* to which the sea-coasts are liable: an accident of this kind will counteract the good effects of some weeks residence near the sea. Where a person has been unexpectedly wet by the rain, and much chilled therewith, I would recommend from ten to fifteen drops of Thebaic tincture to be immediately taken in any liquid; this will counteract the inflammation which would otherwise take place. I have repeatedly witnessed its good effects: and in a case where a person fell into a pond of water in the winter, and was found by me almost lifeless from cold and wet, a dose of thirty drops of Thebaic tincture so far relieved him, that no feverish symptom afterwards occurred, nor any other complaint,

complaint, but a general stiffness of the limbs for some days.

Moderate and frequent exercise, taken near the sea, is of very essential service in procuring permanent health. Walking, riding on horseback, or in carriages, are all advantageous, provided they are not so far extended as to occasion sweat or fatigue. I use the word sweat by way of distinction from perspiration, which I have adopted where only that gentle and almost insensible exhalation arises from the skin or lungs, which is necessary for the due preservation of health. I have named the different exercises in the order I would recommend them, provided no particular impediment prevents walking; as that motion is most congenial to the human body, and permits a more regular circulation throughout the system.

Sanctorius found, by experiments, that the excretions made by the human body in a given time, were commonly in the following proportions: by stool, four; urine, sixteen; and through the pores of the body, forty: these experiments prove

the necessity of preserving a regular perspiration from the body by exercise.

After bathing in the morning, a light breakfast and gentle exercise for an hour or two is proper; then medicine, if necessary, should be taken: and after dinner moderate exercise may again be renewed.

Excursions upon the sea may with propriety be indulged by those persons whose minds are not alarmed with fear: the sickness frequently occasioned by them is very distressing whilst it continues, but it acts more effectually upon the stomach and organs of digestion, also on the liver and biliary vessels, than any means which art can supply.

Such excursions, usually by a smart fit of sickness, cure *indigestions* and *lowness of spirits*; and, unless in confirmed complaints of the lungs, are generally useful.

Most of the disorders which are termed colds, proceed from an irregular application of the external air; as for instance, where one part only of the body is exposed to its action, by being placed between an open window and an open door, or in a public passage: these circumstances

cumstances should be carefully guarded against, as these partial exposures are more dangerous than being wholly exposed to a much greater degree of cold.

The irritability and weakness of the constitution, occasioned by the use of mercurial medicines, are sooner removed by sea-air and sea-bathing than by any other means.

That sea-air is serviceable to the human body, and prejudicial to vegetables, is evident, from the healthiness of the inhabitants and the stunted appearance of trees near the sea.

Late hours should be avoided at all times; *early to bed and early to rise*, is a maxim which should be attended to at home and abroad.

From the moment a person enters amongst the visitors at a bathing-place, he should resolve to lay aside his cares, and to let his mind be at ease; he should consider himself as one of a large family met together in pursuit of health and happiness, and should endeavour to contribute his portion of amusement to the general stock. Numerous occasions offer in which he has the opportunity of show-

ing his good-will by polite attentions; and even if such are slighted, he has the satisfaction to think that the want of civility has not originated on his part. It may be improper to form acquaintances too hastily, but a few inquiries will soon lead to a tolerably accurate judgment; and it is generally the case, that many families return home regretting that acquaintances they have formed only a short time before their departure, had not been known at an earlier period of the visit.

Many agreeable excursions are thus lost for want of a pleasant society to form the party; and many serious looks are exchanged at the public rooms instead of reciprocal civilities, which might have made the moments pleasant. Walking, riding, reading, dancing, card-playing, and other amusements, may be moderately enjoyed, but none of them used to excess; and it should be particularly remembered, that whenever any bodily fatigue has been incurred by such or other means, bathing, particularly for females, should not take place till a day has intervened, to allow the

the

the body to recover its natural tone: it may then be resumed with advantage.

Previous to leaving the sea-coast, the drinking of the water and bathing should be discontinued by lengthened intervals, till the body is not sensible of their loss.

The air and exercise upon the sea-coast will frequently induce people to indulge their appetites without any apparent disadvantage; but care should be taken, on returning home from a bathing-place, that repletions are not excessive, least the want of that exercise which before promoted the necessary secretions, may render such indulgences prejudicial.

The benefits derived from the water, air, and exercise in excursions to the sea-coast, may, with proper care, be rendered permanent: their combined powers will frequently perform radical cures in dangerous diseases, and will generally vivify the animal spirits, give vigour to the system, and add strength to the body.

METHOD OF RECOVERY IN CASE OF APPARENT DEATH BY DROWNING.

As a mark of esteem and as a tribute of respect to my worthy friend, Dr. Hawes, to whom the public is so highly indebted for his exertions in the cause of humanity, I have annexed a short account of the methods recommended by the Royal Humane Society, for the recovery of persons apparently drowned. Accidents of this kind, which sometimes occur on the sea-coast, should be provided against; and this addition may perhaps be the happy means of restoring to life a parent, a relation, a lover, or a friend.

General Rules.

- 1st.—Recover the body as soon as possible from the water; then convey it carefully, with the head raised, to the nearest convenient house.
- 2d.—Strip and dry it, and clean the mouth and nostrils.
- 3d.—*If a young child*, place it between two persons in a warm bed.

4th.

4th.—*If an adult*, lay the body on a blanket or bed, in a warm chamber, if in the winter; or expose it to the sun, if in summer.

5th.—Rub the body long and gently with a hot flannel sprinkled with brandy, gin, or other spirits; and let a heated warming-pan, covered with flannel, be lightly moved over the back and spine.

6th.—*To restore breathing*, introduce the pipe of a pair of bellows (when no surgical apparatus is ready) into one nostril, and closing the mouth and other nostril, inflate the lungs till the breast be a little raised; the mouth and nostrils must then be let free: repeat this process till life appears.

7th.—Tobacco-smoke is to be thrown gently into the fundament with a proper instrument, or through the tube of a pipe, the bowl being covered by a slip of open linen, or other means, so as to defend the mouth of the assistant.

8th.—The breast to be fomented with warm flannel and hot spirits; and if no signs of life appear, the body should be placed in a warm bath: or hot bricks
may

may be applied to the palms of the hands and soles of the feet.

9th.—Electricity may be early employed by a medical assistant.

On signs of returning life, a tea-spoonful of warm water may be given, and (if swallowing be returned) warm wine or diluted brandy. The patient should be put into a warm bed; and if disposed to sleep, will generally awake restored to health.

The plans above recommended are to be used for three or four hours, it being absurd to suppose persons irrecoverable, because life does not soon make its appearance.

The application of a bladder of hot water to the stomach, I am certain will be found a convenient and effectual mode of assisting to restore suspended animation.

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